U.S. Department of Commerce
National Institute of Standards and Technology
Gaithersburg, MD 20899

Certificate Number: 98-061

National Type Evaluation Program

Certificate of Conformance

for Weighing and Measuring Devices

For:

Bench and Counter Scale
Digital Electronic
Models: BPxxxxy-zU2 and GPxxxxy-zU2 Series*
n_{max}: 39 867 (See Page 2) e_{min}: See Page 2
Capacity: 110 g to 8100 g
Platform: 115 mm diameter, 180 mm x 180 mm, or 180 mm x 210 mm

Accuracy Class: II

Submitted by:

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Standard Features and Options

* The model designation will appear as "BPxxxxy-zU2" (Example: "BP110S-0U2"). The suffix "xxxxy" will represent the capacity in grams and may be followed by "S" for Super Range or a "P" for Polirange. These scales are not multi-interval or multiple range scales (See Operation, Page 2). The suffix "z" will represent either 0 (zero) for the general version or any letter for a special version. The U represents approved version in combination with 2 which represents Class II. See page 2 for specific model designations.

AC power supply
Semi-automatic (push-button) zero
Automatic zero setting mechanism (AZSM)
Initial zero setting mechanism (IZSM)
Semi-automatic (push-button) tare
kg, g, lb, oz, ozt, GN, dwt, ct, display capability
Liquid crystal display (LCD)
Draft shield standard on BP310 and BP 110 scales

Semi-automatic (push-button) internal calibration feature on scales with 310 g capacity or less
Stainless steel platter: 115 mm diameter (circular), 180 mm x 180 mm, or 210 mm x 180 mm
Load cell used: Electromagnetic force restoration load cell

Options: RS-232 communication port
Remote printer capability
7 segment alphanumeric display with additional symbols

Temperature Range: 10 °C to 30 °C (50 °F to 86 °F)

This device was evaluated under the National Type Evaluation Program (NTEP) and was found to comply with the applicable technical requirements of Handbook 44, "Specifications, Tolerances, and Other Technical Requirements for Weighing and Measuring Devices." Evaluation results and device characteristics necessary for inspection and use in commerce are on the following pages.

Effective Date: April 17, 1998

Gilbert M. Ugiansky, Ph.D.
Chief, Office of Weights and Measures
Issue Date: October 6, 1998

Sartorius Corporation
Bench and Counter Scale
Models: BPxxxxy-zU2 and GPxxxxy-zU2 Series

Application: General purpose weighing applications; for use as a jeweler's scale, prescription weighing or grain test scale.

Identification: The required marking information appears on a label glued to the side and to the front of the scale adjacent to the display.

Model	Capacity	n_{max}	e_{min}	d_1	d_2	d_3
BP8-0U2	8100 g	10 417 (dwt)	1 g			
BP8100-0U2 [1]	8100 g	10 417 (dwt)	1 g	0.1 g		
BP6100-0U2 [2]	6100 g	7845 (dwt)	1 g	0.1 g		
BP2100-0U2	2100 g	27 007 (dwt)	0.1 g			
BP3100S-0U2	3100 g	39 867 (dwt)	0.1 g	0.01 g		
BP3100P-0U2	3100 g	31 000 (g)	0.1 g	0.01 g	0.02 g	0.05 g
BP2100S-0US	2100 g	27 007 (dwt)	0.1 g	0.01 g		
BP1200-0U2	1200 g	15 432 (dwt)	0.1 g	0.01 g		
BP610-0U2 [2]	610 g	7845 (dwt)	0.1 g	0.01 g		
BP310S-0U2 [1]	310 g	39 867 (dwt)	0.01 g	0.001 g		
BP310P-0U2	310 g	31 000 (g)	0.01 g	0.001 g	0.002 g	0.005 g
BP110-0U2	110 g	14 146 (dwt)	0.01 g	0.001 g		
GP6100-GU2 [2]	6100 g	7845 (dwt)	1 g	0.1 g		
GP3100S-GU2	3100 g	39 867 (dwt)	0.1 g	0.01 g		
GP1200-GU2	1200 g	15 432 (dwt)	0.1 g	0.01 g		

[1] Scales submitted for evaluation
[2] Not all units of measure are available since the capacity by division size (e) results with n less than 5000 scale divisions

Sealing: The scale can be sealed with a wire security seal threaded through the holes in the back of the top and bottom halves of the housing to prevent the housing from being separated. It is also possible to place a self-destructive seal over the two halves of the housing and over the two plastic plugs on the back of the scale to prevent undetected access to calibration and configuration parameters.

Operation: The scales of 310 g capacities or less have a semi-automatic (push-button) calibration feature that internally recalibrates the scale when it is activated. The scale can be calibrated with external weights only by breaking the security seals on the back of the housing and separating the two halves of the housing or removing one of the plastic plugs to gain access to the calibration switch.

The scales display both "e" and "d" from no-load to capacity. For scales with the Polirage capability, the value of d (d ≠ e) changes depending on the load. For scales with the Super Range capability, the value of d (d ≠ e) is constant. The inspector must be aware that the tolerances are based on "e" on a Class II scale, not on "d."

Test Conditions: A Model BP310S-0U2, 310 g x 0.01 g (d = 0.001 g) and a Model BP8100-0U2, 8100 g x 1.0 g (d = 0.1 g) were submitted for evaluation. The results of testing performed in grams were compared to the projected results in the other applicable units to verify that all n_{max}, e_{min}, and maximum capacities were covered. The emphasis of the evaluation was on the device design, operation, environmental factors and marking requirements. Several increasing/decreasing load and shift tests were conducted. The scale was tested over a temperature range of 10 °C to 30 °C (50 °F to 86 °F). A load of approximately one-half capacity was applied to the scale 100 800 times. The scale was tested periodically over this time. Tests were also conducted using 100 VAC and 130 VAC power supplies. The results of the evaluations indicate the devices comply with the applicable requirements of NIST Handbook 44.

Type Evaluation Criteria Used: NIST Handbook 44, 1998 Edition

Tested By: A. McCoy (OH), W. West (OH) 98-061